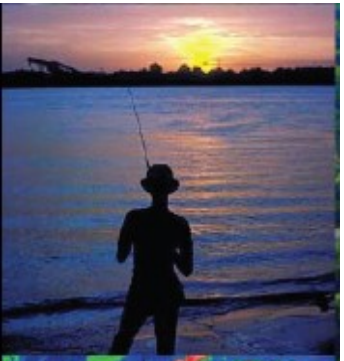
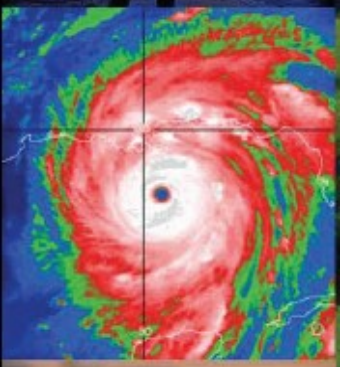
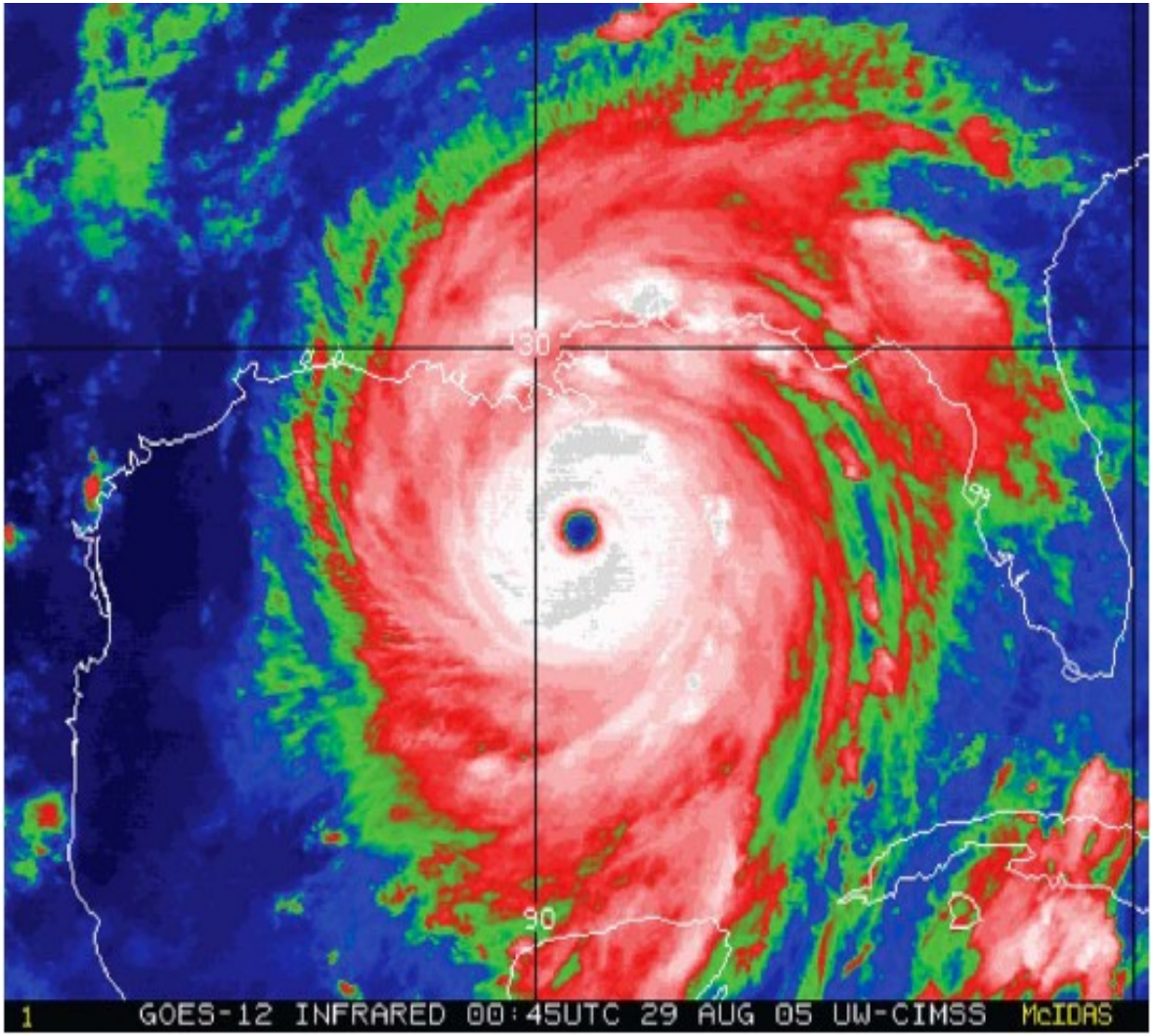



Louisiana Coastal Protection and Restoration Project (LACPR)

Importance of Coastal Louisiana to the Nation

- Louisiana is a “working coast"
  - Strategic energy production and delivery corridor
  - Waterborne commerce gateway to the world
  - Vibrant commercial fisheries production grounds
  - Coastal ecosystem with diverse fish and wildlife
- Coastal restoration is integral to hurricane protection of Louisiana’s “working coast”
- Unaddressed risk to coastal Louisiana equates to risk of disrupted goods and services t Nation

Hurricanes Katrina & Rita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Infrastructure

8

U.S. Army Corps of Engineers Cat 5 Louisiana Coastal Protection & Restoration Project Public Scoping Meetings

Oil facility in Cameron LA damaged

CAPT. PRONG
Empire levee 11-15-05

N.O. East Levee at GIWW

Sandbags at Houma Airport
for Montegut levee

Communities

House on Hwy 82 at Grand Chenier

Agricultural Impacts

Shrimp boat in marsh near Dulac, Louisiana

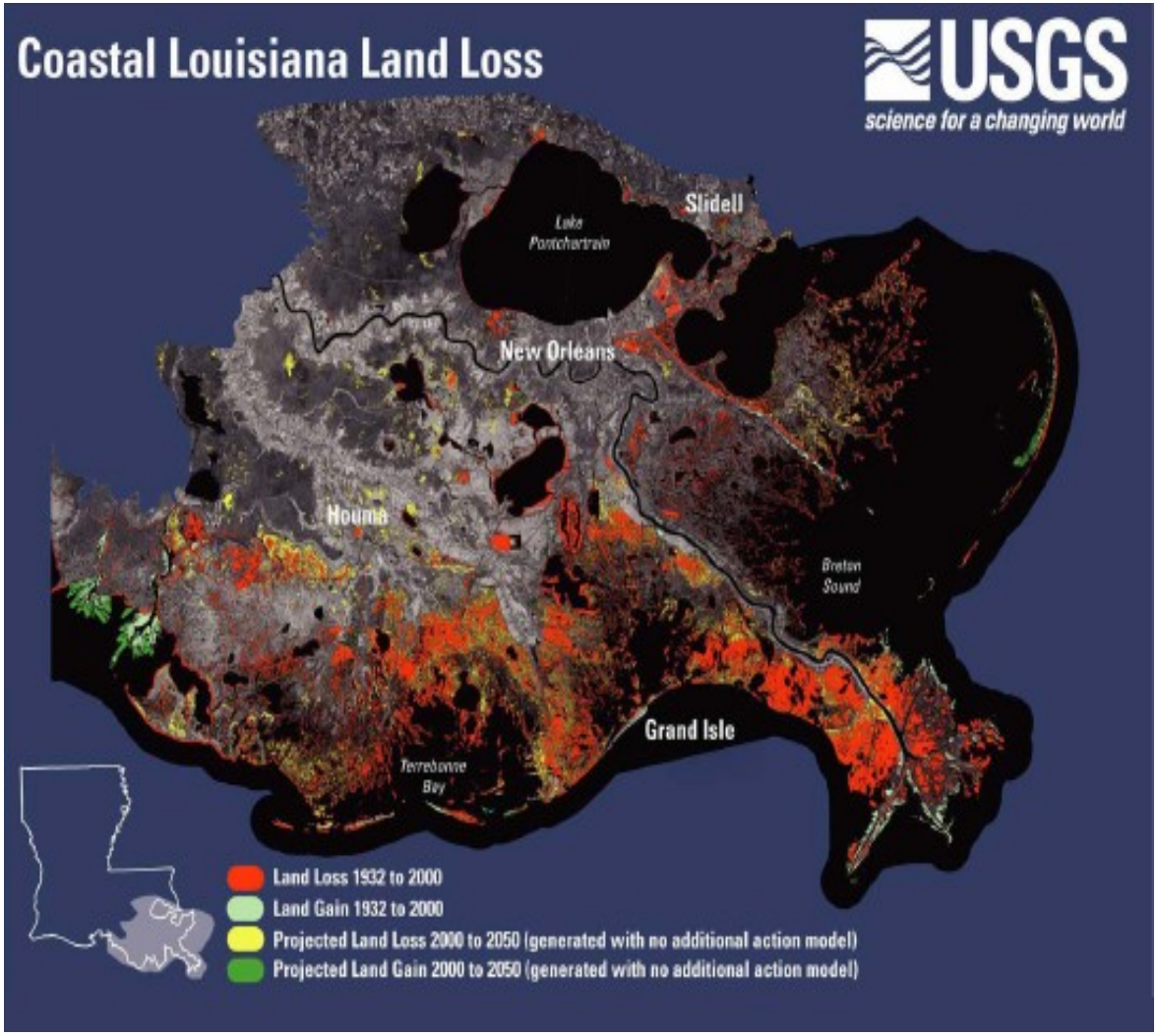
Pointe A La Hache River levee

Marine One over Cameron LA after Hurricane Rita

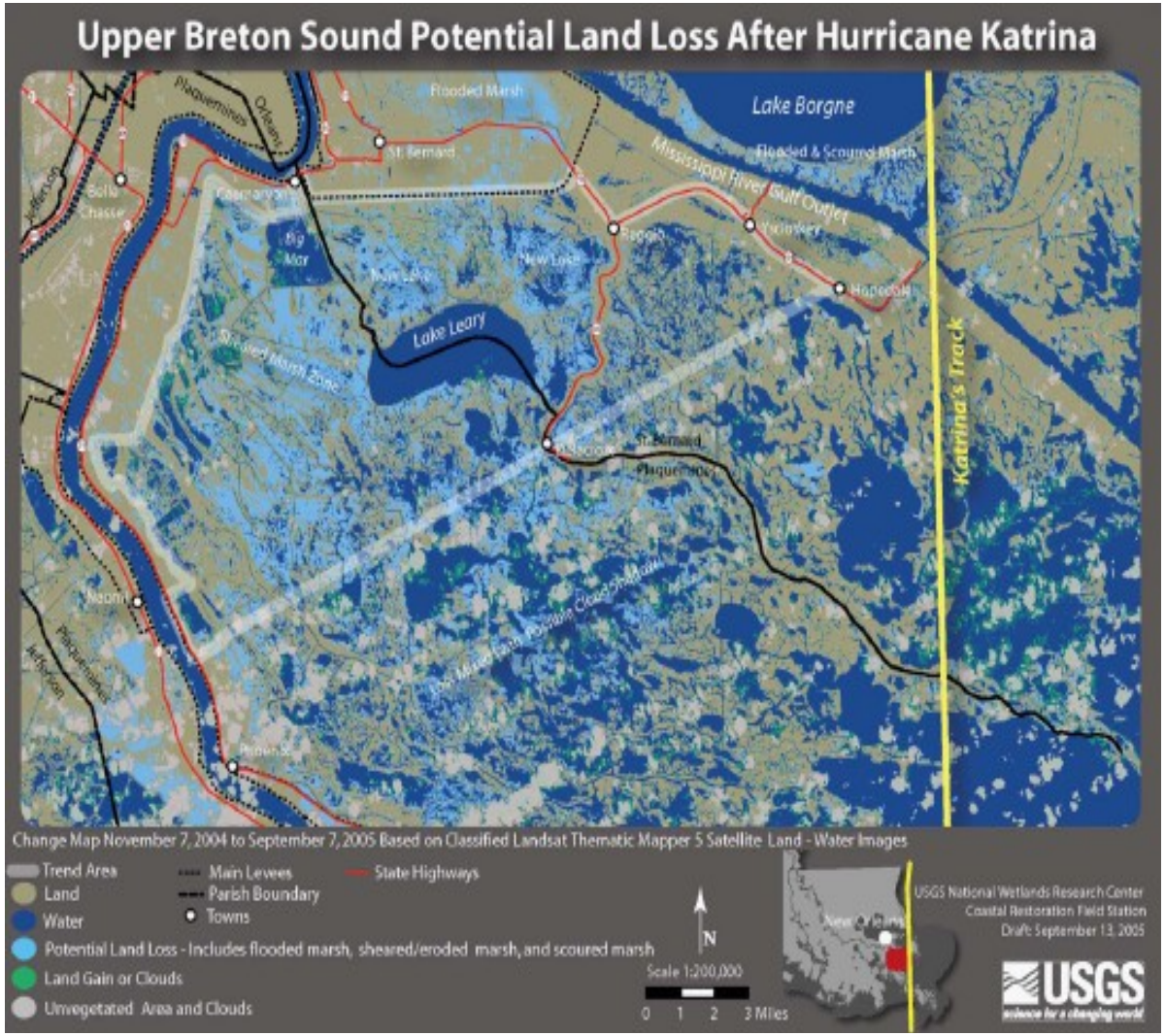
Louisiana's Coast Before Hurricane Katrina

19

U.S. Army Corps of Engineers Cat 5 Louisiana Coastal Protection & Restoration Project Public Scoping Meetings


Coastal Louisiana Land Loss
USGS
science for a changing world
Slidell
Lake Pontchartrain
New Orleans
Houma
Breton Sound
Grand Isle
Terrebonne Bay
Land Loss 1932 to 2000
Land Gain 1932 to 2000
Projected Land Loss 2000 to 2050 (generated with no additional action model)
Projected Land Gain 2000 to 2050 (generated with no additional action model)

Wetlands Losses Caused by Katrina


Upper Breton Sound Potential Land Loss After Hurricane Katrina
Lake Borgne
Flooded Marsh
Flooded & Scoured Marsh
Mississippi River Gulf Outlet
St. Bernard
Lake Leary
Katrina's Track
Change Map November 7, 2004 to September 7, 2005 Based on Classified Landsat Thematic Mapper 5 Satellite Land - Water Images
Trend Area
Land
Water
Potential Land Loss - Includes flooded marsh, sheared/eroded marsh, and scoured marsh
Land Gain or Clouds
Unvegetated Area and Clouds
Main Levees
Parish Boundary
Towns
State Highways
N
Scale 1:200,000
0 1 2 3 Miles
USGS National Wetlands Research Center
Coastal Restoration Field Station
Draft: September 13, 2005
USGS

Fort Pike at The Rigolets, Orleans Parish

Antonio's Lagoon, St. Bernard Parish

Congressional Direction Summary

- Analysis and design exclusive of normal policy considerations of:
  - Category 5 equivalent comprehensive hurricane protection
  - Full range of measures for flood control, coastal restoration, and hurricane protection
- Coordinate with State of Louisiana and its agencies as non-Fed sponsor
- Preliminary Report to Congress
  - $8 M effort
  - Due June 2006
- Final Technical Report
  - $12 M effort
  - Due December 2007
- Submit reports on component areas for authorization as practicable

Source: Department of Defense Appropriations Act, 2006 (P.L. 109-148), and Department of Defense Appropriations Act, 2006 (P.L. 109-148), Chapter 3, Section 5009

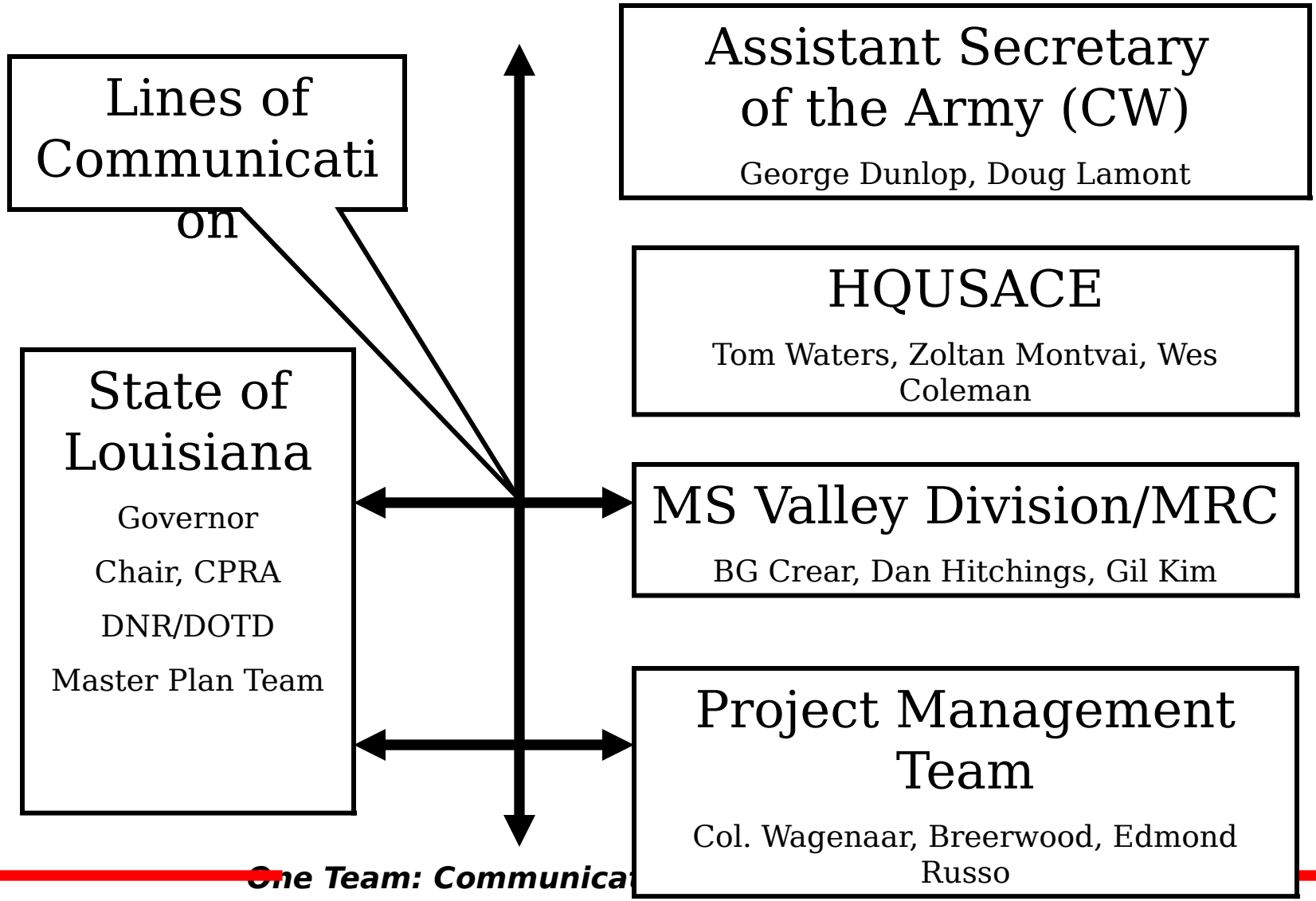
State of Louisiana
Master Plan Development

- Louisiana Coastal Protection and Restoration Authority (CPRA) responsible for producing State Master Plan
  - Produce a comprehensive coastal protection plan combining hurricane protection and the protection, conservation, restoration, and enhancement of coastal features
  - Address short-term and long-range needs
  - Incorporate structural, management, and institutional components in planning
- CPRA partner with USACE in LACPR effort

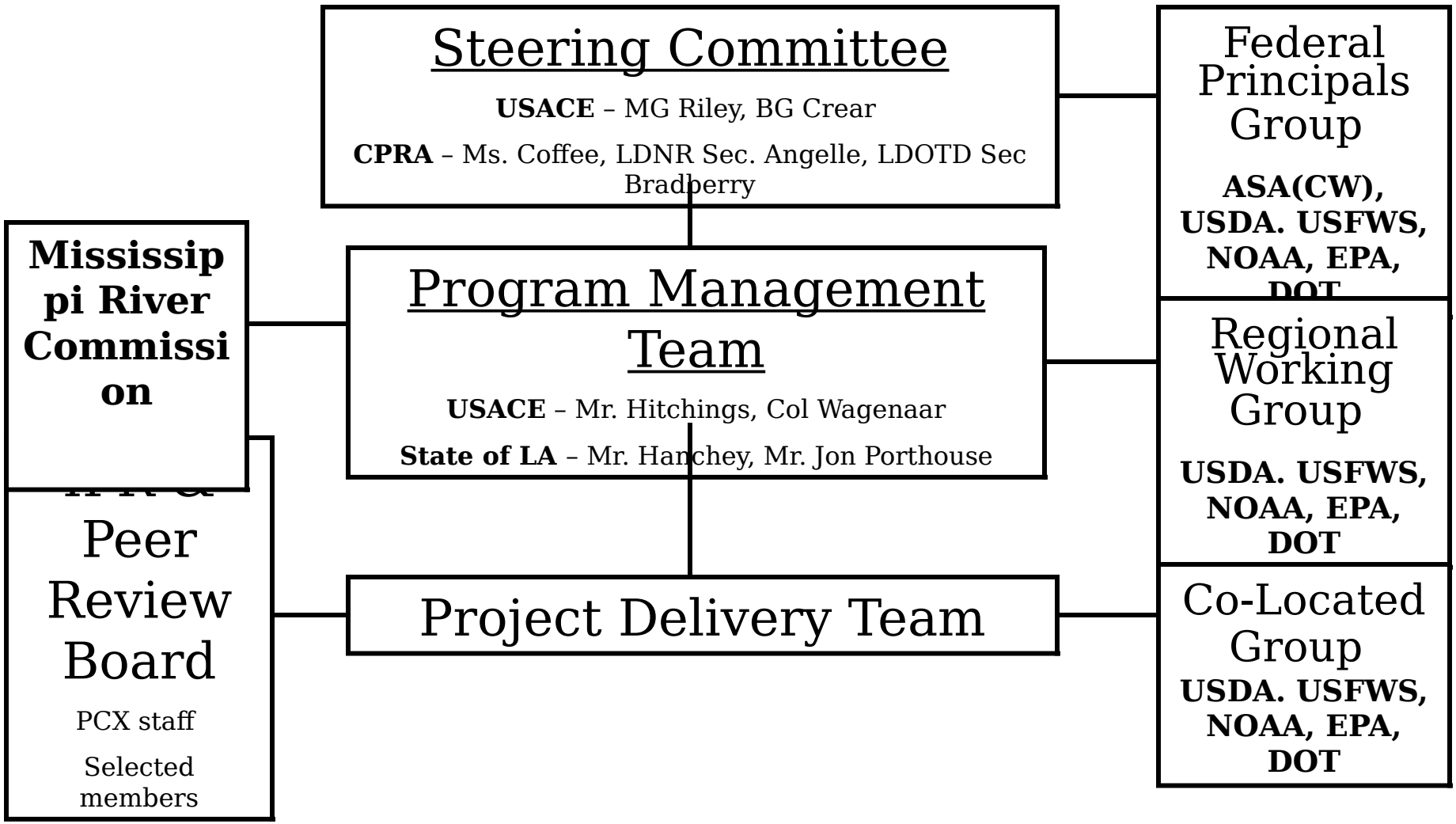
Coordinated Planning Efforts

- Work of the USACE-CPRA is key to Louisiana recovery
  - Emergency response, unwatering, debris removal, structure repair, advance to completion, LACPR
- Multi-discipline – broad organizational teams
  - CPRA, DNR, DOTD, DEQ, DWF, EPA, FWS, NOAA Fisheries, NOS, NWS, LSU, UNO, Tulane, Notre Dame, UNC, Dutch
- Strong public involvement
  - Workshops, public scoping, stakeholder forums
- Expedited planning to produce plans for construction
  - Technical analysis and design not feasibility study

Vertical Team



Organizational Structure


Steering Committee
USACE – MG Riley, BG Crear
CPRA – Ms. Coffee, LDNR Sec. Angelle, LDOTD Sec Bradberry
Federal Principals Group
ASA(CW), USDA. USFWS, NOAA, EPA, DOT
Mississippi River Commission
Program Management Team
USACE – Mr. Hitchings, Col Wagenaar
State of LA – Mr. Hanchey, Mr. Jon Porthouse
Regional Working Group
USDA. USFWS, NOAA, EPA, DOT
Peer Review Board
PCX staff
Selected members
Project Delivery Team
Co-Located Group
USDA. USFWS, NOAA, EPA, DOT

Task and Team Development

- Task design and team resourcing is a strategic enabler to project execution
- Routine task aspects
  - Existing methods tried and true that fit the need
  - Performed by practitioners
  - Spread across district staff and A/E resources
- Complex task aspects
  - Advanced methods used when required to answer difficult questions
  - Performed by specialists and technical experts
  - Performed by district staff, A/Es, and ERDC
- R&D task aspects
  - Exploration and origination of new methods, expansion/refinement of existing methods, and development of technologies for transfer and use in project development
  - Performed by technical experts
  - Conducted by ERDC and other laboratories

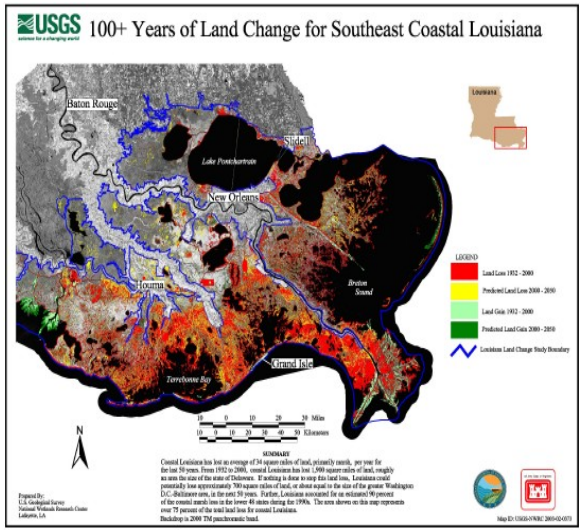
Co-Leads Concept

- Establish district interdisciplinary leads in collaboration with ERDC on PDT
- Collectively gain operational knowledge on stakeholder views and project context during development
- Exchange ideas on technical approaches between district and R&D environments
- Conceive, develop and execute advanced methods and technologies beneficial to project problem solving where existing approaches do not meet needs
- Continue co-lead relationships through project life cycle addressing needs adaptively to ensure maximum project performance and minimum project costs

Federal/State Guiding Principles to Project Development

- Integrate coastal restoration, hurricane protection, flood control water resources planning objectives
- Unify Technical Reports with State Master Planning
- Closely coordinate with MS hurricane protection project
- Perform collaborative planning among agencies
- Involve and educate the public in project development
- Leverage best and brightest expertise in and outside government, nationally and abroad
- Conduct Independent Technical Review / External Peer Review
- Provide bi-weekly Vertical Team In-Progress Reviews

Planning and Design Challenges

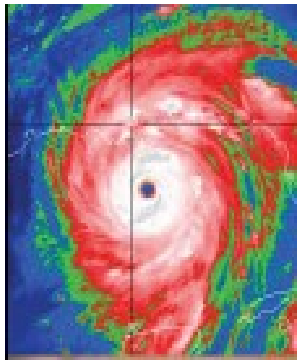


Coastal landscape change

Community recovery timelines

Difficult engineering conditions

Interconnected systems



Battling nature's most powerful storms

Innovative technologies

LACPR Approach
Developing A Risk Based Paradigm

- Former approaches relied on determination of net benefits and benefit to cost analysis
- New tools to inform policy decision makers
  - Advanced computer simulation modeling
  - IPET risk based framework
  - Inundation-reoccurrence maps to inform risk reduction
- Using probability and consequences scenarios to formulate and evaluate alternatives to assist decision making
- Levels, types, and locations of coast wide risk reduction to be identified commensurate to risk factors
- New risk-informed decision making approach - will use quantitative risk assessment by including consequences to populations and assets

Plan Formulation Overview

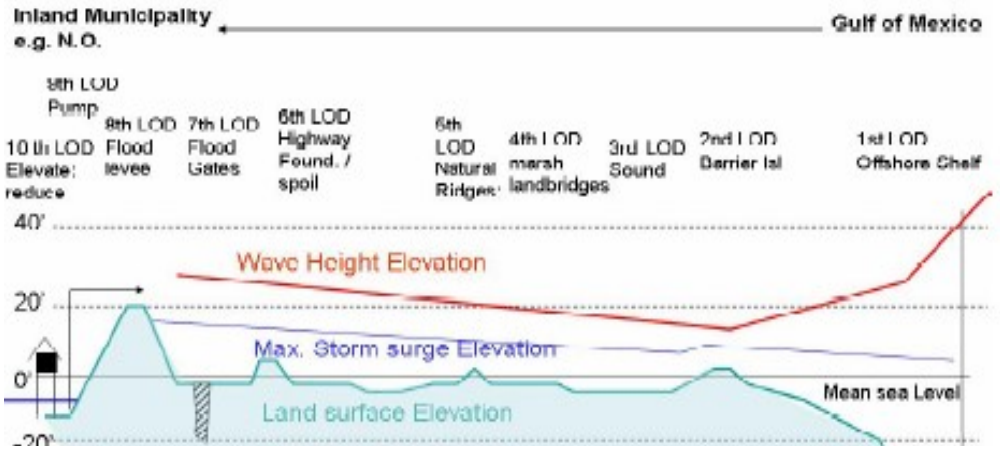
- Integrate ongoing planning efforts (USACE, LRA, CPRA)
- Timetable reflecting all three efforts.
- Ensure all sources of information are included.
- Develop integrated, consensus-based solution.
- Approach adapted from established UK strategic coastal planning framework.
  - Halcrow, LTD
  - Coastal defense planning

Plan Formulation Overview

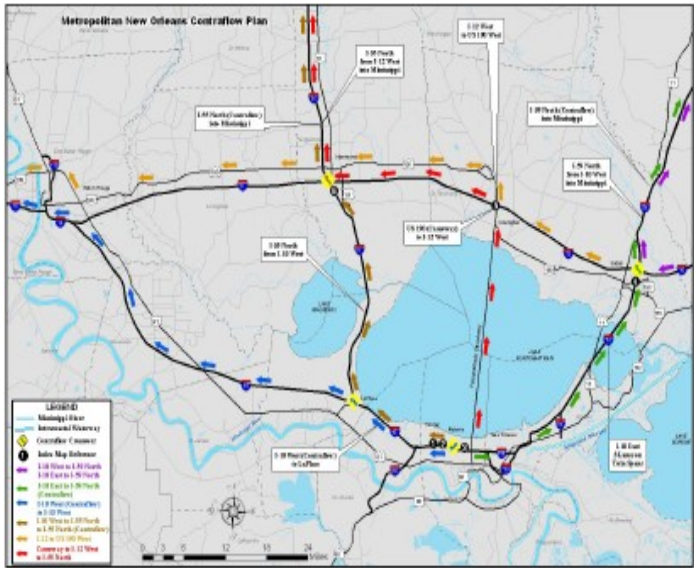
- Define strategy for coastal management through 100 years
- Avoid unintended long-term consequences of short term actions
- Recognize uncertainties
  - Build on certainties, e.g. sea level will rise, land will subside
  - Appropriate level of detail for long-term appraisals
- Assume present land use, excepting known changes
  - Plan will drive future development patterns, not be driven by them
- Regular review – adaptive process management

Category 5 Protection Strategies

Community recovery and redevelopment plans



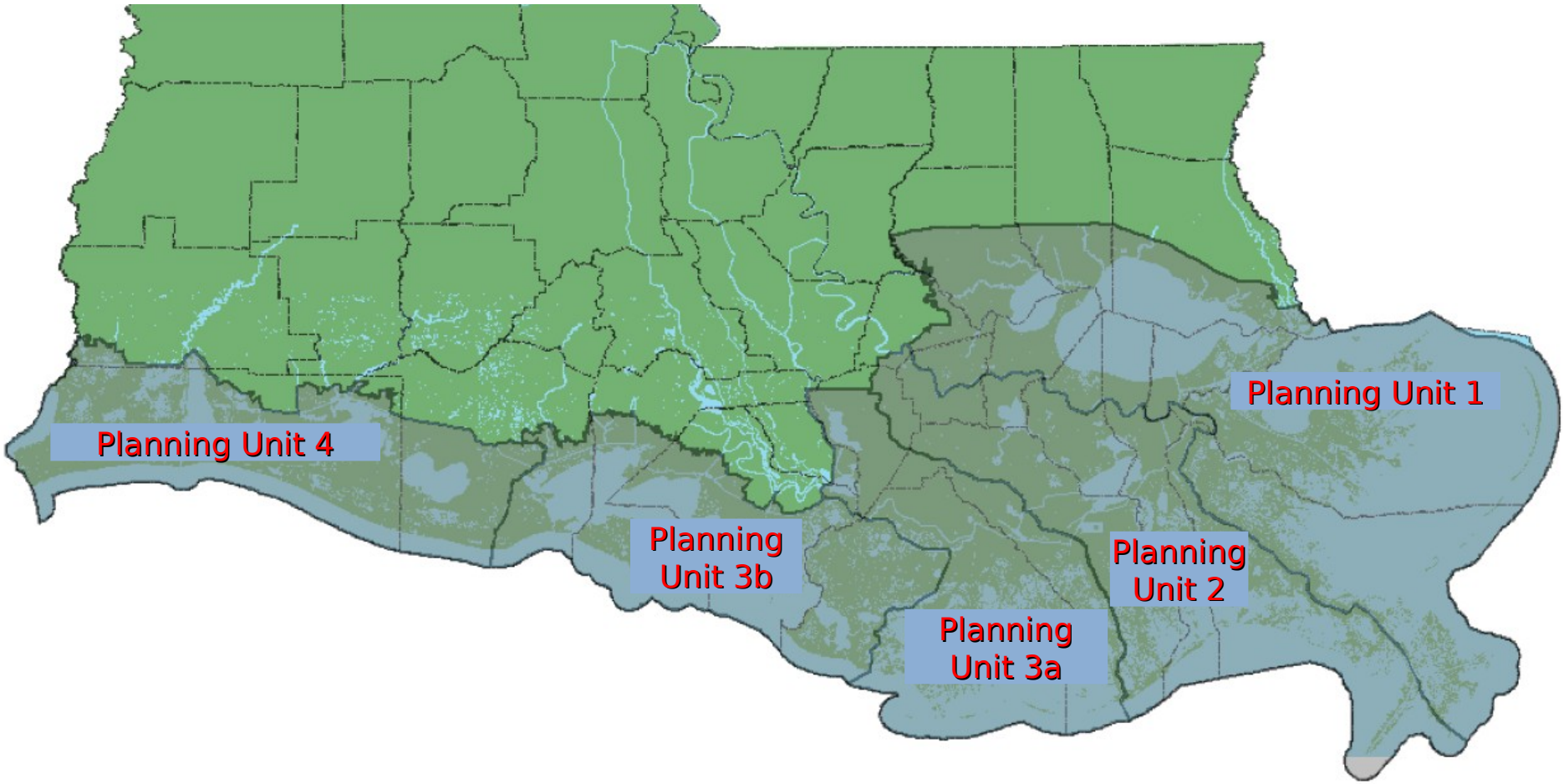
Coastal lines of defense



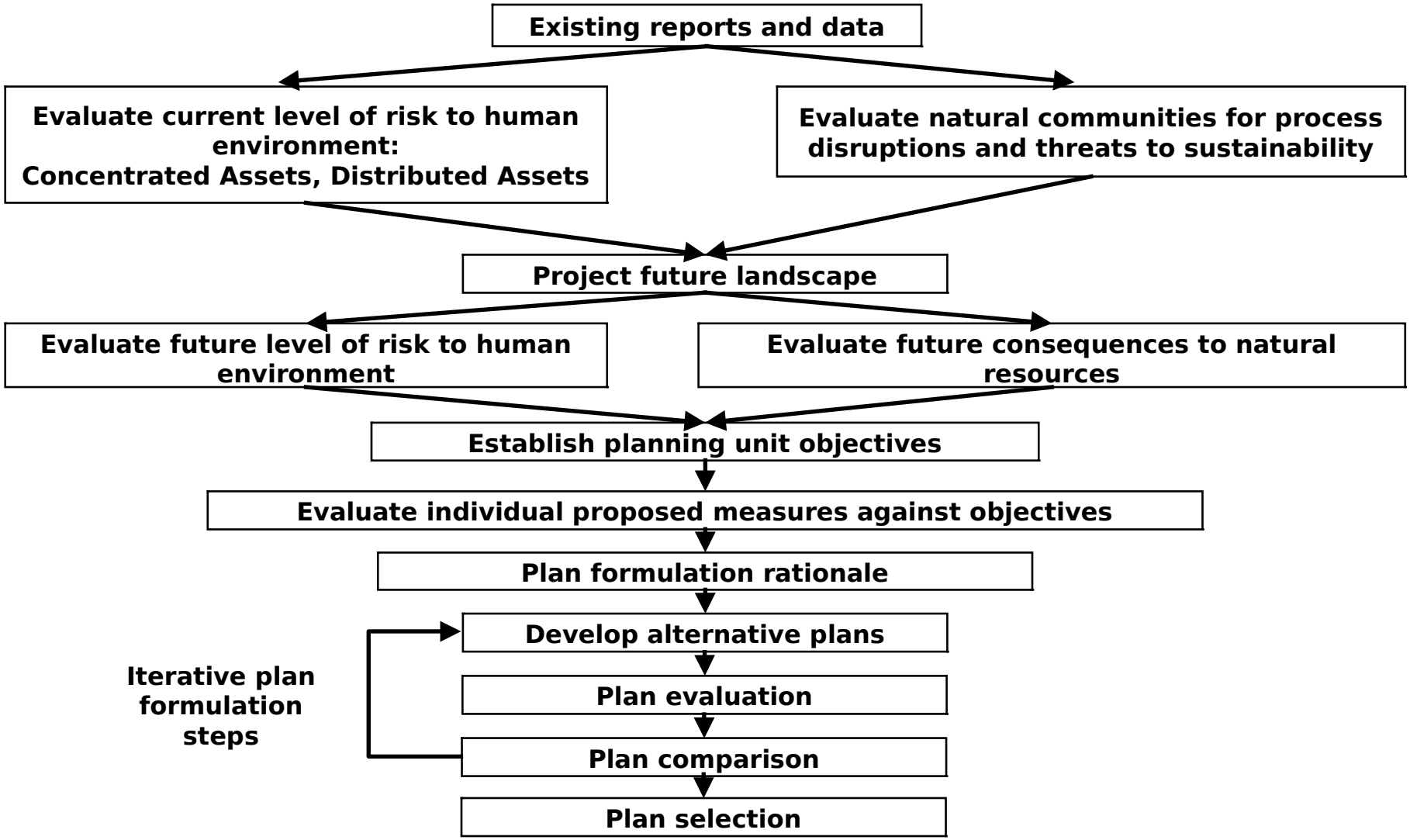
Evacuation plans

Structural storm surge barriers

Planning Units



Plan Formulation Process

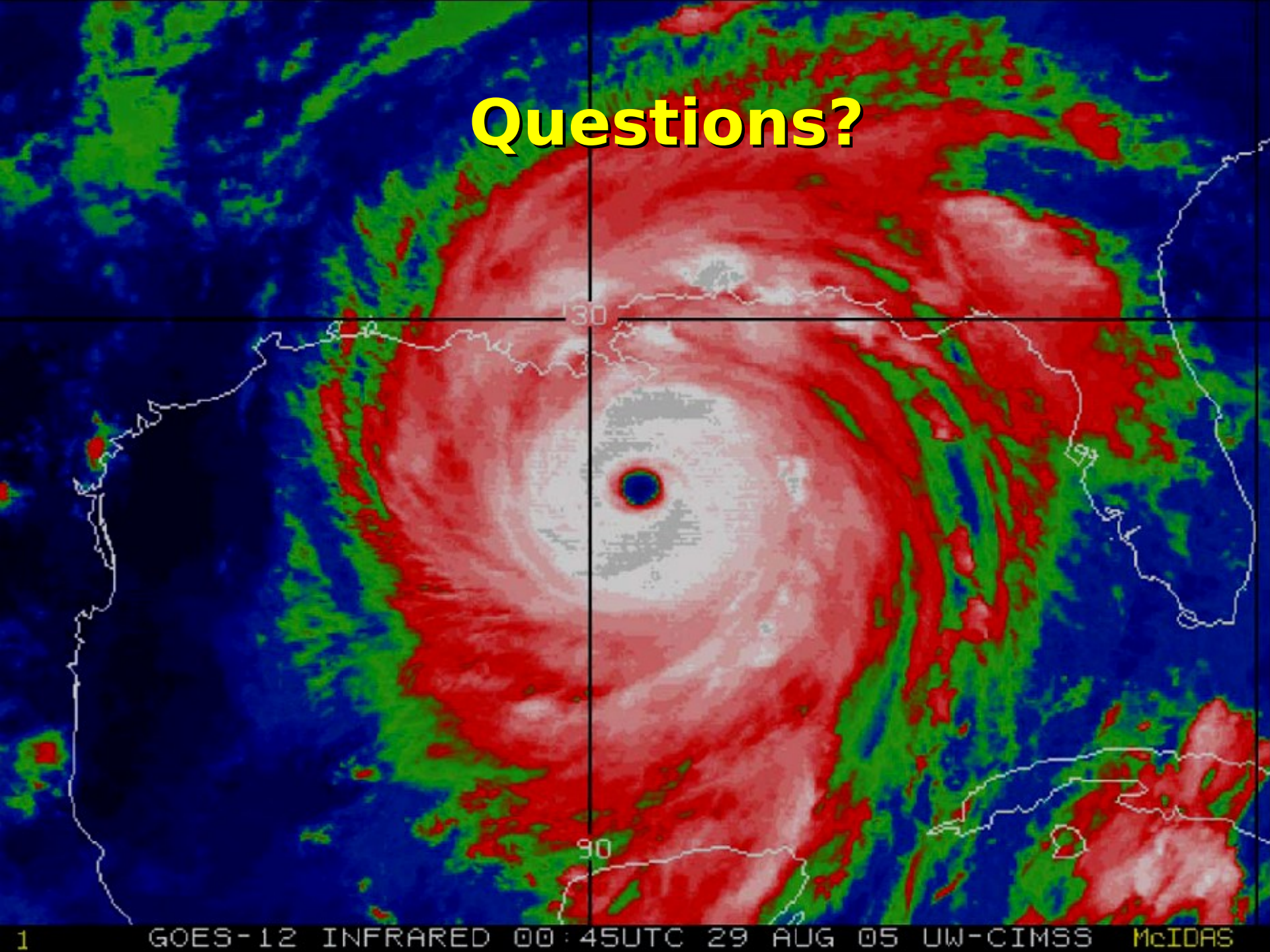

Existing reports and data
Evaluate current level of risk to human environment:
Concentrated Assets, Distributed Assets
Evaluate natural communities for process disruptions and threats to sustainability
Project future landscape
Evaluate future level of risk to human environment
Evaluate future consequences to natural resources
Establish planning unit objectives
Evaluate individual proposed measures against objectives
Plan formulation rationale
Develop alternative plans
Plan evaluation
Plan comparison
Plan selection
Iterative plan formulation steps

Early Identification of Plan Components

"[The Chief of Engineers] …may submit reports on component areas of the larger protection program for authorization as soon as practicable…" Department of Defense Appropriations Act, 2006 (P.L. 109-148)

Once the framework is developed plan components or features may be identified for which accelerated planning and analysis appears to be justified. Such features would be those:

- That have a narrow range of technically feasible solutions
- For which more extensive study is not likely to significantly change problem solving approaches
- That would clearly be a component of the comprehensive system
- Are an independently functioning component for coastal protection and restoration
- Reduce risk for significant populations and assets
- Provide significant reduction in risk (greatly exceeding cost)


Questions?
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